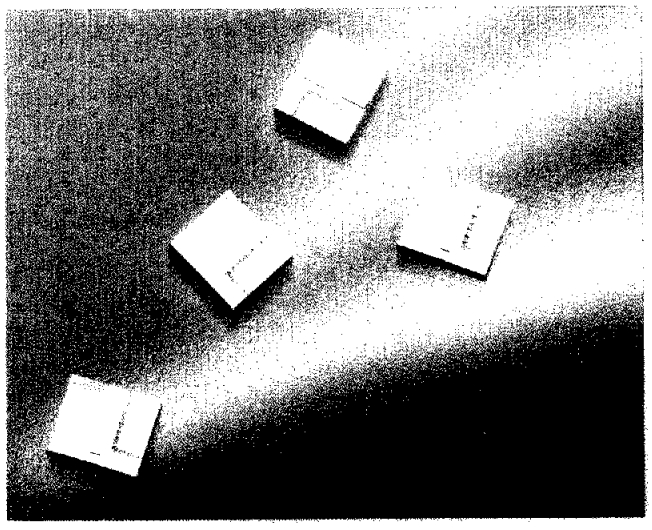
First high-power broadly tunable laser component

Princeton Lightwave Inc (founded in May 2000 in Cranbury, NJ, USA) has launched a suite of three product families (available in volume in Q4/2001, for use in either long-haul or metro area networks), based on chip-level design and integration technology:

• WaveHarp wavelength-stabilised distributed feedback pump lasers - these integrate the grating on-chip (eliminating the need for an external Fiber Bragg Grating) and emit up to 300 mW in a narrow spectral band. They can also eliminate the need for amplifiers in Metro DWDM networks.

• WavePower Pump lasers for high-power (500 mW) 14xx nm Raman amplifier and 1480 nm EDFA pump modules.

• WaveRider InP-based tunable Broadband GainChip (BGC) - these enable for the first time (in a practical format) light from an external cavity laser to be both boosted to adequate fibre launch power (more than 40 mW, double that currently available) *and* broadly tuned (over the entire S, C and L bands with wavelengths of 1280-1620 nm). This enables simplified chip design, a smaller package - in chip-on-carrier (CoC) sub-assemblies - and less complex manufacturing.



Pictured - Introduced by Princeton Lightwave Inc at March's Optical Fiber Communications conference, the WaveRider InP-based tunable Broadband GainChip produces more than 40 mW and enables an external cavity laser to launch 20 mW of power into a fibre while tuning over more than an entire band (>40 nm) for S, C and L bands (1280-1620 nm).

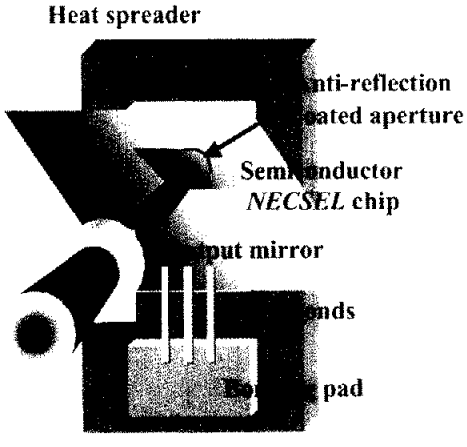
Princeton Lightwave has a 90,000 ft^2 highly automated fab and expects to triple its 50-person team by year-end.

First long-haul surface-emitting lasers

Using its NECSEL (Novalux Extended Cavity Surface Emitting Laser) technology - which produces a high-power, perfectly circular beam emitted from the surface of the chip - in April Novalux Inc (Sunnyvale, CA, USA) is shipping samples of the first high-power surface-emitting lasers for long-haul optical networks (a hundred-fold increase in power). The two 980 nm EDFA pump lasers include:

• a single-mode module (200 and 360 mW powers); and

• a 750 mW multi-mode module for the emerging dual-clad fibre market.



Pictured - A schematic diagram of the Novalux Extended Cavity Surface Emitting Laser (NECSEL).

GTRAN launches 10Gb/s ICs & transponders; 40Gb/s 4" InP HBTs to be made at GCS

GTRAN Inc (founded in 1999 in Westlake Village, CA, USA) has launched its single-power-supply GT10 family of 10Gb/s transponders and ICs, including the following:

• GT10-1310TRS and GT10-1550TRS self-contained data transponders (compatible with current 300-pin MSA optical performance requirements for Short and Intermediate range applications, and with fully integrated heatsinks for broad operating temperature range);

• GT10-TX and GT10-RX self-contained, fully integrated "simplex" transmitter and receiver modules (which are also fully compliant to GR-253 CORE, 10GB Ethernet ready, and have MSA pin-for-pin I/Os);

• GT10-1005LD high-performance Laser Diode Driver IC;

• GT10-5000LA high-performance SiGe 12.5Gb/s Limiting Amplifier IC, for OC-192 receiver modules (with sufficient bandwidth for double forward error correction systems at 12.5Gb/s).

Using foundry partner Global Communications Systems Inc (Torrance, CA, USA), GTRAN has developed InP HBTs on 4" wafers whivh have f_T = 150 GHz and f_{max} > 200 GHz. This allows the design of optoelectronic ICs for 40Gb/s (OC-768) SONET systems (a WDM/Forward Error Correction module and InP-based 40Gb/s GT40 transponder module were also shown at the *Optical Fiber Communications* conference).